

New and interesting species of *Dimeria* R. Br. (Poaceae) from Kerala, India

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Abstract

A tropical and subtropical genus, comprised of about 45 species, *Dimeria* R. Br. has been known to have 28 species in India of which 15 species occur in Kerala (Sreekumar & Nair, 1991). This genus of remarkably uniform morphology, is mostly montane. Presented in this paper are two new species, *D. sreenarayanii* and *D. iddukkiensis*. Besides, an amended description of *D. kurunthoticalana* Jacob, a highly variable species now known only from the type collection at MH, also is presented here based on extensive collections in Kerala.

The genus *Dimeria* R. Br. with about 45 species, is mainly distributed in the tropical and subtropical parts of the world. In India, this genus has been known to be represented by 28 species of which 15 occur in Kerala along the Malabar coast (Sreekumar & Nair, 1991). The species are mostly mountain dwellers, growing in grasslands, rock crevices and in forest clearings.

During our explorations in Kerala, we collected a few interesting specimens of this genus from the Western Ghats of southern Kerala. On critical studies with literature and comparison with authentic specimens, it was found that two of them are new species. We referred these specimens to Dr. T. A. Cope, Kew and Dr. Sreekumar, Port Blair, who

also endorsed our view. They are described here as new species, *D. sreenarayanii* (commemorating the great sage Sreenarayana, after whom our college is named) and *D. iddukkiensis* named after the type locality. This is followed by an amended description of *D. kurunthoticalana* Jacob based on extensive studies on collections from throughout Kerala.

Dimeria sreenarayanii Ravi et Anilkumar
sp. nov. (Fig. 1)

D. sreenarayanii est affinis *D. fischeri* Bor differt autem forte ab ea in eo quod habet non graciles culmi, longiores ad 5 cm racemi, latiores c 1.25 mm rachis, longiores 6-7 mm spiculae cum largis partibus, inferior gluma anguste alata carinae superioris parte, longior ad 16 mm

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arista cum una columna ad 6 mm longa et palea anthoecii supericris.

Type: India, Kerala, Idukki Dist., Peer-medu, Kuttikkanam 30, Dec. 1991
Anil Kumar 3297 (Holo MH; Iso CAL, KFRI, SNCH)

D. sreenarayanii is allied to *D. fischeri* Bor, but markedly differs from it in having non-slender culms, longer (up to 5 cm long) racemes, broader (c 1.25 mm wide)

rachis, larger (6-7 mm long) spikelets with larger parts, lower glume narrowly winged on the keel in the upper half, longer (up to 16 mm long) awn with a column up to 6 mm long and palea for the upper floret.

Tufted annual. *Culms* moderately thick, up to 20 cm tall, smooth and glabrous; nodes glabrous. *Leaves* scattered; *sheath* keeled, glabrous, up to 7 cm long; blade linear-lanceolate, acuminate, cuneately rounded at the base, sparsely

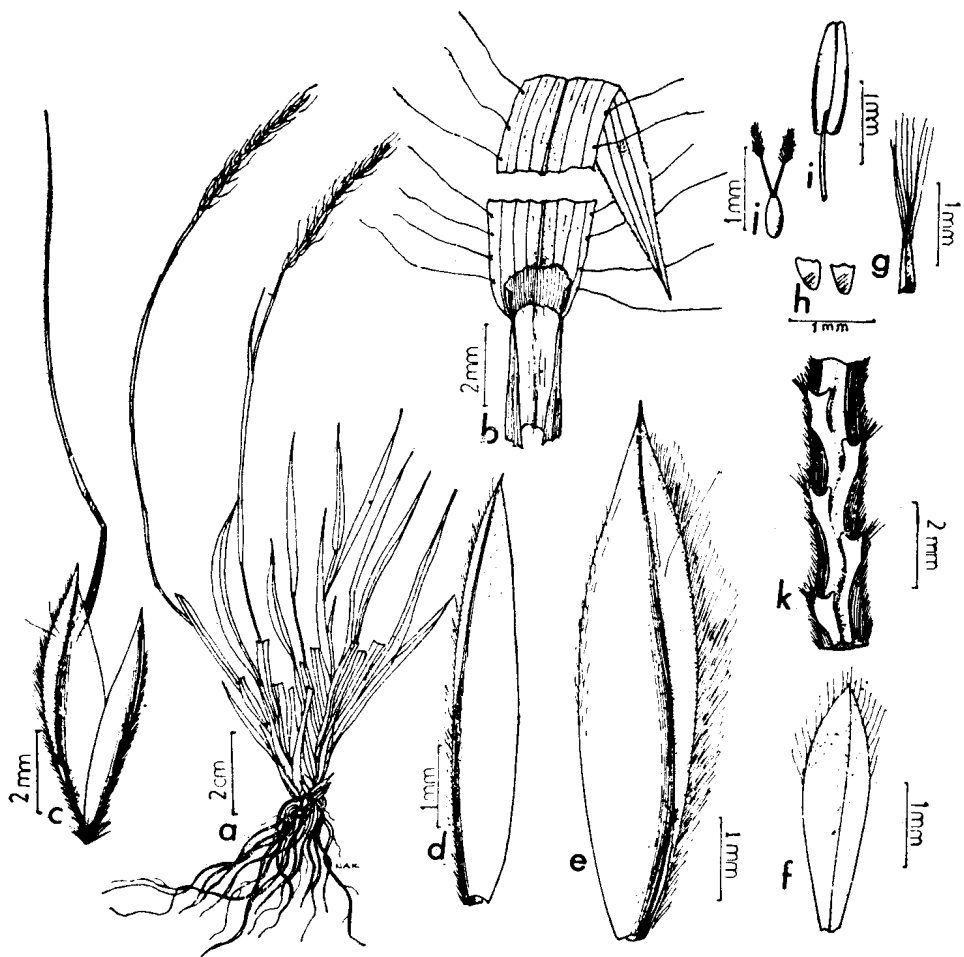


Fig. 1. *Dimeria sreenarayanii*. a, whole plant; b, ligule and blade; c, spikelet; d, lower glume; e, upper glume; f, lower lemma; g, upper palea; h, lodicules; i, stamen; j, pistil; k, rachis.

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long ciliate on the upper surface near the margins, especially towards the apex, glabrous otherwise, pale brown when dry, up to $7\text{ cm} \times 4\text{ mm}$; *ligule* c 1 mm long, rounded and fimbriate at the apex. *Inflorescence* of a single raceme, a little exserted from the sheath, up to 5 cm long; *rachis* trigonous-flattened, slightly flexuous, broadly winged, shortly ciliate on the margins, 1-1.25 mm wide; *pedicels* ciliate on the outer margins,

concave at the apex, c 0.75 mm long. *Spikelets* up to 7 mm long including the 0.5 mm long, bearded callus, callus hairs up to 1.25 mm long. *Lower glume* linear to oblong-elliptic, acuminate, shortly aristate at apex, hyaline towards the margins, keeled, keel narrowly winged from the middle upwards, ciliate all along, glabrous otherwise, $5.25 \times 0.8\text{ mm}$. *Upper glume* elliptic, shortly acuminate with a short arista, broadly winged on



Fig. 2. *Dimeria idukkiensis*. a, whole plant; b, leaf sheath and blade; c, spikelet; d, lower glume; e, upper glume; f, lower lemma; g, rachis; h, lodicules; i, stamen; j, pistil; k, pistil.

the keel all along or up to a little above the base, long ciliate on the back, sides hyaline, glabrous to sparsely ciliate, with sparsely ciliate margins, 6.5×1.5 mm. *Lower lemma* hyaline, oblanceolate, 1-nerved, ciliate on the margins towards the apex, c 3 cm long and epaleate. *Upper lemma* elliptic, hyaline, bifid at apex into acute lobes, 3.5 mm long, awned from the sinus; *awn* up to 16 mm long with a basal, 6 mm long column. *Palea* small, hyaline, elongate-triangular, long-ciliate towards the apex, c 1 mm long; *Stamens* 2, anthers 1.5 mm long. *Lodicules* 2, small. *Grains* obliquely elliptic, pale brown, c 2 mm long.

The specific epithet *sreenarayanii* is after the Great Saint and Social Reformer, Sree Narayana Guru, in whose name the senior author's institution and a number of other educational institutions have been established all over Kerala.

***Dimeria idukkiensis* Ravi et Anilkumar sp. nov. (Fig. 2)**

Dimeria idukkiensis est affinis *D. orissae* Bor et *D. kanjirapallilana* K. C. Jacob, tamen differt ab his duobus in eo quod habet margines ciliates pro rachis. Ea est amplius distincta a *D. orissae* in hoc quod habet nodos barbatus in culmis, projectae vaginae pilosae, foliorum laminae non-scaberulae cum longis tuberculis ortis pilis marginibus et venis, projectae super inferiorem superficiem, ligulae longiores 1 mm, longiores 4.5 - 5.5 mm spiculae, glumae inferioris pilatae inferiori parte carinae, gluma superior projecta alata superiori parte $1/2 - 2/5$ carinae cum longis pilis a dorso de super aut infra medium excepto apice et longioris 1 mm antherae. Insuper ad margines ciliati rachis on divaricati racemi et longae

spiculae distinguunt eam de *D. kanjirapallilana*.

Type: India, Kerala, Idukki Dist., Peer-medu, Kuttikkanam, 19, Oct. 1991
Anil Kumar 3190 (Holo MH; Iso CAL, KFRI & SNCH)

Dimeria idukkiensis is close to *D. orissae* Bor and *D. kanjirapallilana* K. C. Jacob, but is distinct from both in having ciliate margins for the rachis. It is further distinct from the former in having bearded nodes of the culms, prominently hairy sheath, non-scabrid blades with long tubercle-based hairs on the margins and veins, prominently so on the lower surface, longer (1 mm long) ligule, longer (4.5 to 5.5 mm long) spikelets, lower glume ciliate in the lower half of the keel, upper glume prominently winged in the upper $1/2$ to $2/5$ of the keel with long hairs along the back from above or below the middle except the tip and longer (1 mm long) anthers. In addition to its ciliate margins of the rachis, the non-divaricate racemes and larger spikelets distinguish it from *D. kanjirapallilana*.

Tufted annual. *Culms* slender, unbranched, up to 15 cm tall, smooth, bearded at nodes; *Leaves* scattered; *sheath* closely investing the internodes, prominently keeled on the back towards the apex, up to 6.5 cm long; *blade* linear-lanceolate, acuminate, slightly rounded at the base, provided with long tubercle-based hairs on the margins and veins, prominently so on the lower surface, membranous, more or less greenish when dry, up to $5 \text{ cm} \times 5 \text{ mm}$; *ligule* transversely oblong, membranous, fimbriate at the truncate apex, 1 mm long. *Inflorescence* of mostly 2 racemes, slightly divergent sometimes 1; *rachis* triquetrous,

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winged, flattened and more or less straight on the back, keeled and zig-zag on the front; keel sparsely shortly ciliate; wing broad, more or less membranous and ciliate on the margins, 1 mm broad. *Pedicels* short, thick and concave at the

apex, 0.5-0.75 mm long. *Spiklets* elliptic-oblong, awned, 4.5-5.5 mm long; callus hairs 0.75 mm long. *Lower glume* linear-elliptic, acute, apex shortly curved, keeled; keel narrowly winged in the upper two-thirds, scaberulous along the back and

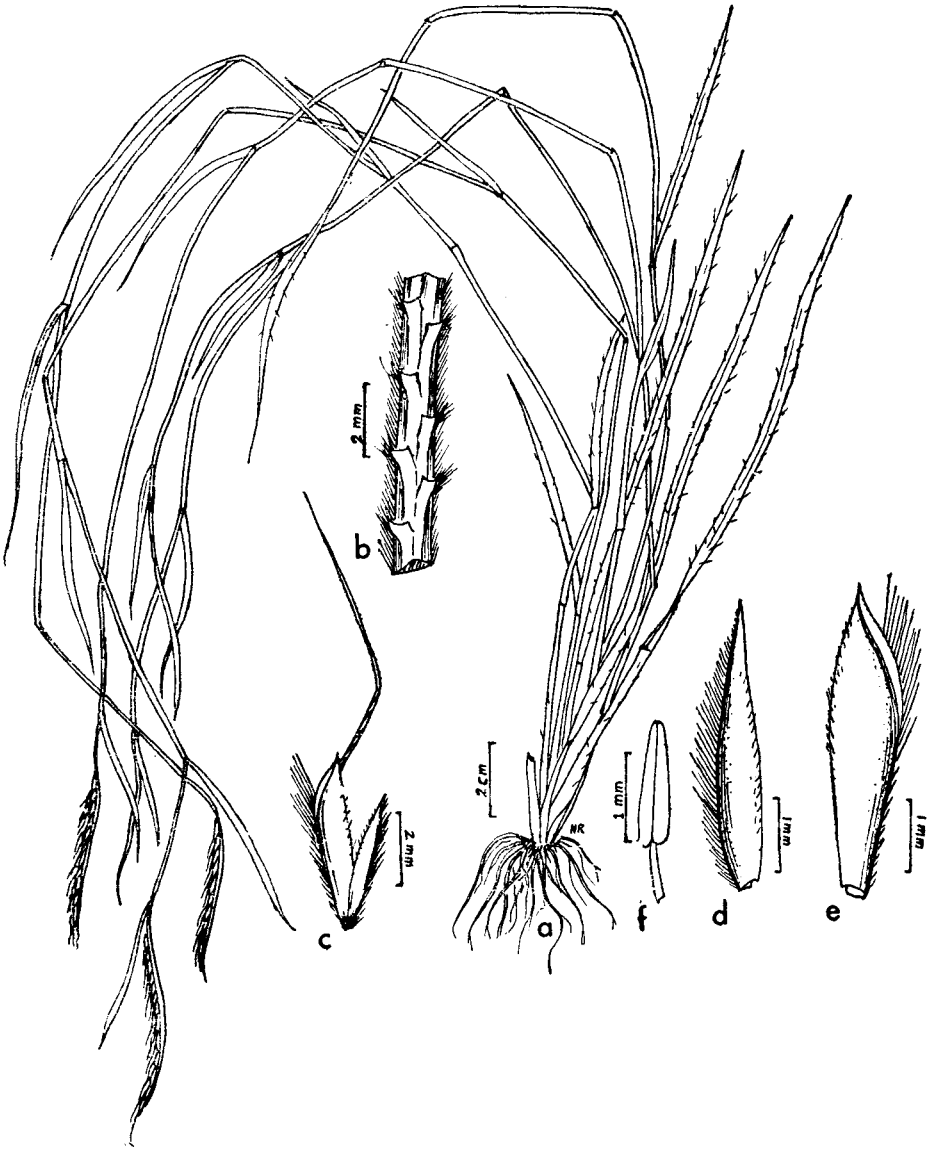


Fig. 3. *Dimeria kurunthicalana*. a, whole plant; b, rachis; c, spikelet; d, lower glume; e, upper glume; f, stamen.

sides, especially towards the apex and base, ciliate on the keel in the lower half, sometimes shortly towards the margins below the middle, 3.5×0.5 mm. *Upper glume* elliptic-oblong, acute to shortly acuminate, keeled, prominently winged in the upper $1/2$ to $2/5$ of the keel with long ciliate hairs along the back from above or below the middle except the tip, sparsely ciliate in the middle towards the margins, $4.25 - 5.25 \times 0.75$ mm. *Lower lemma* oblanceolate, acute at apex, cuneate at base, hyaline, sparsely ciliate on the margins in the upper half, c. 2.5 mm long, empty and non-paleate. *Upper lemma* elliptic-lanceolate, 2-cleft at the apex, awned and fertile; *awn* geniculate, c. 12 mm long with a chestnut brown 4-5 mm long column; stamens 2, anthers 1 mm long; ovary 0.5 mm long, stigma plumose; palea absent.

Specimens of *D. kurunthotalana* were first collected by us from Vallicode, Kottayam in Pathanamthitta Dt. in November 1989 and subsequently from Neriambangalam in Ernakulam Dt. in December 1991 and their identity was confirmed by Dr. P. V. Sreekumar (Personal communication). These collections are probably the first after K. C. Jacob's type collection from Peermede in Idukki Dt. way back in 1941. This endemic species has so far been represented in the MH only by the type collection (No. 86320 A). Critical study of the authors' collections and the type collection revealed considerable variation from the protologue in general habit, leaf size and arrangement, number of racemes, size of spikelets and the indumentum of the various parts. But these variations can well be accommodated within the circumscription of the species. K. C. Jacob failed to notice

these variations probably because, he relied only on his single collection made from Peermede. The results of the present authors' critical study necessitated amendment of the protologue. Therefore the amended description of the species is provided here.

K. C. Jacob had not given illustrations of spikelet parts in his paper. A subsequent work (Sreekumar & Nair, 1991) which relied on the type collection and the protologue for its description also did not provide illustrations. Therefore, illustrations are provided along with the amended description.

Dimeria kurunthotalana Jacob, J. Bombay nat. Hist. Soc. 47:47. 1947; Sree Kumar & Nair Fl. Kerala, Grass, 96. 1991, *emend descr* Ravi et Anil Kumar. (Fig. 3.)

Tufted erect annual. *Culms* slender to moderately robust, unbranched to sparsely branched, smooth and glabrous, up to 50 cm tall; nodes bearded, glabrescent. *Leaves* basal or scattered. *Sheath* keeled on the back, prominently hairy with tubercle-based hairs except at base, up to 6 cm long; *blade* linear, acuminate, more or less rounded at the base, garnished with tubercle-based hairs, especially on the lower surface, up to $15 \text{ cm} \times 5 \text{ mm}$; *ligule* membranous, more or less rounded and fimbriate at the apex, c. 1 mm long. *Inflorescence* of one, sometimes two racemes 5 cm long; *rachis* flattened on the back, subtrigonus and zig-zag on the front, winged, ciliate on the margins, 1-1.5 mm wide; *pedicels* short, thickly ciliate on the outer margin, concave at the apex, c. 0.5 mm long. *Spikelets* oblanceolate, 4-6 mm long; callus short, c. 0.25 mm

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long, callus hairs up to 1 mm long. *Lower glume* subcoriaceous, linear-elliptic to oblong-elliptic, acuminate, prominently keeled; keel ciliate except towards the spinulose apex, sides sparsely scaberulous, 4.5×0.5 mm. *Upper glume* subcoriaceous, oblong-elliptic, acuminate, keeled; keel winged towards the apex, prominently long-ciliate above the middle up to $1/3$ of the wing, sparsely and shortly so below the middle, spinulose towards the apex, sides thin, minutely sparsely ciliate towards the margins, $4.5-5.5 \times 1$ mm. *Lower lemma* linear-oblongate, acute, hyaline, ciliate on the margins from middle upwards, 1-nerved, empty and epaleate, 2-3 mm long. *Upper lemma* hyaline, 2-fid at the apex, 1-nerved, 2.5-3.5 mm long, awned from

the sinus; *awn* 10-15 mm long with a 4-4.5 mm long, chestnut brown column, paleate, *palea* short, hyaline, sparsely short-ciliate; *lodicules* 2; *stamens* 2, anthers 1-2 mm long; *ovary* 0.25-0.5 mm long; *stigmas* 2, plumose, 1-1.5 mm long. *Grains* more or less obliquely linear-oblong, flattened, pale yellow-brown, 2 mm long.

The observation of the upper palea for the species is interesting because, the earlier authors have not reported it.

Specimens examined: Anilkumar 2122, (4 November, 1989, Vallicode Kottayam, Pathanamthitta Dt.), Ravi 3289, (6 December, 1991, Near Ranikallu, Neriya-mangalam, Ernakulam Dt.) (MH)

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